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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/822,179	04/02/2001	Nobuhiro Kihara	SON-1112/DIV	8871

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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 07/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/822,179

Applicant(s)

KIHARA ET AL.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 25-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 25-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other:

Art Unit: 2872

DETAILED ACTION

Remark

- This Office Action is in response to applicant's preliminary amendment filed on April 8, 2002, which was indicated as non-compliance in paper 6. In the response letter dated April 30, 2003, the applicant indicates that a response to the non-compliance was mailed out on April 22, 2002, yet fails to establish the stamped postcard receipt. The response has been lost and has never been matched with the file. The applicant however has included a mail log to indicate that the response has been mailed on April 22, 2002. The Office took the good faith of the applicant. The current Office Action therefore replaces the Office Action dated April 14, 2003.
- The preliminary amendment filed on April 8, 2002 has been entered as paper number 5.
- By this amendment, the applicant has canceled claims 1-24 and has newly added claims 25-39.

Claim Objections

1. Claim 36 objected to because of the following informalities: the phrase "said film cartridge" recited in claim 36 is indefinite since it lacks proper antecedent basis from its based claim. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2872

3. Claims 25-28, and 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Frosch et al (PN. 3,796,476) in view of the patent issued to McGrew (PN. 4,411,489).

Frosch et al teaches a method and an apparatus for *simultaneously producing a hologram reproducible as both a reflection type and transmission hologram* wherein the apparatus comprises a prism (7, Figures 1 and 2) serves as the *light inlet block* that contacts a *photosensitive emulsion* (4), serves as the *recording medium*. An object beam (O) is projected to the recording medium on a *first* surface of the recording medium and a reference beam (B₁) is projected to the second surface, opposite to the first surface, of the recording medium through the prism or light inlet block. Frosch et al further teaches that the reference beam (B₁) is designed to *total internally reflected* at the *lower* surface of the photosensitive emulsion or recording medium, which is the *first* surface of the recording medium to generate a second reference beam (B₂). The object beam (O) then interferes with the reference beam (B₁) to create a *reflection* type hologram known as the Lippmann hologram and the object beam interferes with the second reference beam (B₂) to record a *transmission* type hologram. The reflection type and transmission type hologram are superimposed, (please see Figures 1 and 2 and column 2, lines 34-69), and they can be reproduced simultaneously.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the image data for creating the object beam is sequentially generated parallax image string for creating strip or dot-shaped hologram elements. McGrew in the same field of endeavor teaches a system for synthesizing strip-multiplexed holograms wherein a cinema film (14) is used to modulate the object beam to produce sequential parallax image string. The sequential parallax image string is sequentially projected to the hologram-recording medium to record the strip-multiplexed holograms. It would then have been obvious to one skilled in the art to apply the teachings of McGrew to modify the apparatus and method for producing hologram of Frosch et al by using sequential parallax image string to

Art Unit: 2872

modulate the object beam and to create strip-multiplexed holograms for the benefit of providing hologram that is capable for stereoscopic viewing. With regard to claim 30, McGrew teaches to use supply and takeup rollers (72 and 70) to advance the recording medium.

This reference also does not teach to use a one-dimensional diffusion plate located adjacent to the first surface of the recording medium. McGrew teaches to use a unilateral diffuser (or one-dimensional diffuser) (420, Figure 12) for making the hologram viewable in wide vertical angles, (i.e. strip length direction angles), (please see column 15, lines 20-25). It would then have been obvious to one skilled in the art to add a unilateral or one-dimensional diffuser adjacent to the recording medium for the benefit of increasing the viewable angle for the hologram. Although this reference does not teach explicitly that the diffuser is placed adjacent to the recording medium with a void there between however such modification is considered to be obvious matter of design choice to one skilled in the art for the benefit of making the recording diffuses even more so that becomes more uniformly distributed.

With regard to claims 26 and 32, Frosch et al does not teach explicitly that the light inlet block is of column shape that is adopted for rotation. McGrew teaches to use a prism block (54, Figure 1) for directing the recording lights to the recording medium wherein the prism block is of column shape and is adopted for rotation movement. It would then have been obvious to one skilled in the art to apply the teachings of McGrew to replace the prism block or light inlet block of Frosch et al with a column shape that adopted for rotation movement for the benefit of making the light inlet block suitable for roller type of recording medium.

With regard to claims 27 and 33, it is either implicitly true or an obvious modification to one skilled in the art to make the path length for both object beam and the reference beam to be equal to create desired phase relationship between the beams.

With regard to claims 28 and 34, Frosch et al teaches that the object beam is projected perpendicularly to the recording medium.

Art Unit: 2872

With regard to claim 31, McGrew teaches that the recording medium is supplied by a takeup roller (70, Figure 1) and a supply roller (72), which implicitly provide tension to the recording medium.

4. Claims 29, 35 and 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Frosch et al and McGrew as applied to claims 25 and 30 above, and further in view of the patent issued to Hotta et al (PN. 5,504,593).

The apparatus and method for simultaneously producing therefore reproducing reflection type and transmission type hologram as taught by Frosch et al in combination with the teachings of McGrew as described for claims 25 and 30 above have met all the limitations of the claims.

These references fail to teach explicitly to include an absorbing layer within the light inlet block. Hotta et al in the same field of endeavor teaches to make the inlet block with light absorbing treatment so that unwanted reflection light may be prevented or eliminated. It would then have been obvious to one skilled in the art to treat the light inlet block with light absorbing layer for the benefit of absorbing the unwanted reflection of light at surface of the light inlet block to prevent noise hologram being recorded.

With regard to claims 38 and 39, Hotta et al further teaches to include a feed nozzle (8, Figure 1) for supplying index matching fluid (4) to be interposed between the light inlet block and the recording medium. It would then have been obvious to one skilled in the art to modify the hologram producing apparatus of Frosch et al accordingly for the benefit of reducing the unwanted refraction and reflection at the interface of the light inlet block and the recording medium to eliminate any noise hologram being recorded.

5. Claims 36 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Frosch et al and McGrew as applied to claim 30 above, and further in view of the patent issued to Ishikawa et al (PN. 5,798,850).

Art Unit: 2872

The apparatus for simultaneously producing and reproducing transmission type and reflection type hologram as taught by Frosch et al in combination of the teachings of McGrew as described for claim 30 above have met all the limitations of the claims.

These references however do not teach explicitly to include a cover sheet for protecting the photosensitive surface of the recording medium and such sheet being removed when fed to the light inlet block. **Ishikawa** et al in the same field of endeavor teaches to use a base film (3, Figure 12(b) and 13) to protect the photosensitive material (2) wherein the base film is peeled off before the photosensitive material is fed to the plate. **Ishikawa** et al further teaches to use rollers for removing dust particles (9, Figures 1(1) and 1(b)) from the photosensitive material, (please see column 2). It would then have been obvious to one skilled in the art to apply the teachings of **Ishikawa** et al for the benefit of protecting the photosensitive recording medium and removing dust particles within so that no defects caused by dust particles in the photosensitive recording medium may present.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

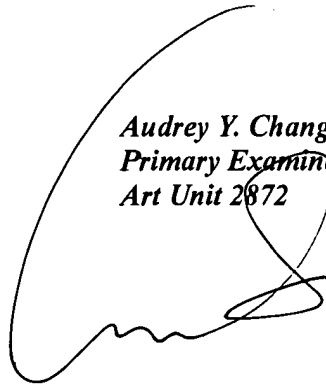
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Art Unit: 2872

Audrey Y. Chang
Primary Examiner
Art Unit 2872

A. Chang, Ph.D.
July 11, 2003

A handwritten signature in black ink, appearing to be 'Audrey Y. Chang', is written over the printed name and title. The signature is fluid and cursive, with a large loop at the top and a wavy line at the bottom.